

10/529729

IN THE CLAIMS

JC17 Rec'd PCT/PTO 30 MAR 2005

Please amend the claims as follows:

1. (original) A low-pressure mercury vapor discharge lamp comprising an at least partly substantially cylindrical discharge vessel (10) with a length  $L_{dv}$  and with an internal diameter  $D_{in}$ , the discharge vessel (10) enclosing, in a gastight manner, a discharge space (13) provided with a inert gas mixture and with mercury,

the discharge vessel (10) comprising discharge means for maintaining a discharge in the discharge space (13), characterized in that

the ratio of the weight of mercury  $m_{Hg}$  in the discharge vessel (10) to the product of the internal diameter  $D_{in}$  and the length of the discharge vessel  $L_{dv}$  is given by the relation:

$$\frac{m_{Hg}}{D_{in} \times L_{dv}} = C ,$$

wherein  $C \leq 0.01 \mu\text{g}/\text{mm}^2$ .

2. (original) A low-pressure mercury vapor discharge lamp as claimed in claim 1, characterized in that  $0.0005 \leq C \leq 0.005 \mu\text{g}/\text{mm}^2$ .

3. (original) A low-pressure mercury vapor discharge lamp comprising an at least partly substantially cylindrical discharge vessel (10) with a length  $L_{dv}$  and with an internal diameter  $D_{in}$ ,

the discharge vessel (10) enclosing, in a gastight manner, a discharge space (13) provided with a inert gas mixture and with mercury,

the discharge vessel (10) comprising discharge means for maintaining a discharge in the discharge space (13), characterized in that

the product of the mercury pressure  $p_{Hg}$  and the internal diameter  $D_{in}$  of the discharge vessel lies in a range expressed by  $0.13 \leq p_{Hg} \times D_{in} \leq 8 \text{ Pa.cm.}$

4. (original) A low-pressure mercury vapor discharge lamp as claimed in claim 3, characterized in that the product of the mercury pressure  $p_{Hg}$  and the internal diameter  $D_{in}$  of the discharge vessel lies in a range expressed by  $0.13 \leq p_{Hg} \times D_{in} \leq 4 \text{ Pa.cm.}$

5. (currently amended) A low-pressure mercury vapor discharge lamp as claimed in ~~claim 1, 2, 3, or 4~~, characterized in that the discharge vessel (10) contains less than 0.1 mg mercury.

6. (currently amended) A low-pressure mercury vapor discharge lamp as claimed in claim 1, ~~2, 3, or 4~~, characterized  
in that the discharge means comprises electrodes (20a; 20b) arranged in the discharge space (13),  
in that an electrode shield (22a; 22b) at least substantially surrounds at least one of the electrodes (20a; 20b),  
and  
in that the electrode shield (22a; 22b) is made from a ceramic material or from stainless steel.

7. (currently amended) A low-pressure mercury vapor discharge lamp as claimed in claim 1, ~~2, 3, or 4~~, characterized  
in that the means for maintaining an electric discharge are situated outside a discharge space surrounded by the discharge vessel, and  
in that said means comprise a coil provided with a winding of an electrical conductor, with a high-frequency voltage, for example having a frequency of approximately 3 MHz, being supplied to said coil in operation.

8. (currently amended) A low-pressure mercury vapor discharge lamp as claimed in claim 1, ~~2, 3, or 4~~, characterized in that the product of the pressure of the inert gas mixture ~~p<sub>igm</sub>~~ and the

internal diameter  $D_{in}$  of the discharge vessel (10) lies in a range expressed by  $p_{igm} \times D_{in} \geq 5.2$  Pa.m.

9. (original) A low-pressure mercury vapor discharge lamp as claimed in claim 8, characterized in that  $p_{igm} \times D_{in} \geq 8$  Pa.m.

10. (currently amended) A low-pressure mercury vapor discharge lamp as claimed in claim 1, ~~2, 3, or 4~~, characterized  
in that at least a portion of an inner wall of the discharge vessel (10) is provided with a protective layer (17), and  
in that the protective layer (17) comprises a material selected from the group formed by oxides of scandium, yttrium, and a further rare-earth metal, and/or a material selected from the group formed by borates of an alkaline-earth metal, scandium, yttrium, and a further rare-earth metal, and/or a material selected from the group formed by phosphates of an alkaline-earth metal, scandium, yttrium, and a further rare-earth metal.

11. (original) A low-pressure mercury vapor discharge lamp as claimed in claim 10, characterized in that the alkaline-earth metal is calcium, strontium, and/or barium.

12. (original) A low-pressure mercury vapor discharge lamp as claimed in claim 10, characterized in that the further rare-earth metal is lanthanum, cerium, and/or gadolinium.

13. (original) A low-pressure mercury vapor discharge lamp as claimed in claim 10, characterized in that the oxide is yttrium oxide and/or gadolinium oxide.

14. (original) A low-pressure mercury vapor discharge lamp as claimed in claim 10, characterized in that the discharge vessel (10) is made from a glass comprising silicon dioxide and sodium oxide, with a glass composition comprising the following essential constituents, given in percentages by weight (wt.%): 60-80 wt.% SiO<sub>2</sub> and 10-20 wt.% Na<sub>2</sub>O.

15. (original) A low-pressure mercury vapor discharge lamp as claimed in claim 14, characterized in that the glass composition comprises the following constituents: 70-75 wt.% SiO<sub>2</sub>, 15-18 wt.% Na<sub>2</sub>O, and 0.25-2 wt.% K<sub>2</sub>O.

16. (currently amended) A low-pressure mercury vapor discharge lamp as claimed in claim 1, ~~2, 3, or 4~~, characterized in that the discharge vessel (10) is made from a glass that is substantially

free of PbO and comprises, expressed as a percentage by weight, the following constituents: 55-70 wt.% SiO<sub>2</sub>, <0.1 wt.% Al<sub>2</sub>O<sub>3</sub>, 0.5-4 wt.% Li<sub>2</sub>O, 0.5-3 wt.% Na<sub>2</sub>O, 10-15 wt.% K<sub>2</sub>O, 0-3 wt.% MgO, 0-4 wt.% CaO, 0.5-5 wt.% SrO, 7-10 wt.% BaO.

17. (original) The low-pressure mercury vapor discharge lamp as claimed in claim 16, characterized in that the composition of the discharge vessel comprises: 65-70 wt.% SiO<sub>2</sub>, 1.4-2.2 wt.% Li<sub>2</sub>O, 1.5-2.5 wt.% Na<sub>2</sub>O, 11-12.3 wt.% K<sub>2</sub>O, 1.8-2.6 wt.% MgO, 2.5-5 wt.% CaO, 2-3.5 wt.% SrO, 8-9.5 wt.% BaO.

18. (original) The low-pressure mercury vapor discharge lamp as claimed in claim 16, characterized in that the composition of the discharge vessel in addition comprises: 0.01-0.2 wt.% Fe<sub>2</sub>O<sub>3</sub> and/or 0.01-0.2 wt.% CeO<sub>2</sub>, and/or 0.01-0.15 wt.% SO<sub>3</sub>.

19. (original) The low-pressure mercury vapor discharge lamp as claimed in claim 16, characterized in that the sum of the concentrations of Li<sub>2</sub>O, Na<sub>2</sub>O, and K<sub>2</sub>O lies in a range from 14 to 16 wt.% and/or the sum of the concentrations of SrO and BaO lies in a range from 10 to 12.5 wt.%.

20. (currently amended) The low-pressure mercury vapor discharge lamp as claimed in claim 1, ~~2, 3, or 4~~, characterized in that the discharge vessel is provided with a luminescent layer comprising a luminescent material at a side facing away from the discharge space.

21. (original) The low-pressure mercury vapor discharge lamp as claimed in claim 20, characterized in that the luminescent layer is embedded in an inorganic matrix material.

22. (currently amended) A compact fluorescent lamp comprising a low-pressure mercury-vapor discharge lamp as claimed in claim 1, ~~2, 3, or 4~~, characterized in that a lamp housing (70) is attached to the discharge vessel (10) of the low-pressure mercury-vapor discharge lamp, which lamp housing is provided with a lamp cap (71).